

CLAIMS:

1. A method of reducing the effects of intermodulation distortion in a zero-IF receiver (100), comprising:
 - receiving an RF signal,
 - modulating the RF signal to provide one or more baseband signals,
 - detecting (240) an occurrence of intermodulation distortion within the one or more baseband signals, and
 - selectively enabling (250) a wide-notch filter (130) to attenuate signal components of the one or more baseband signals within a predetermined notch-width of the wide-notch filter (130), based on the occurrence of the intermodulation distortion.
2. The method of claim 1, wherein
 - the predetermined notch-width is approximately +/- 60 kHz, and approximately centered at zero-Hertz.
3. The method of claim 1, further including
 - detecting (280) a cessation of the intermodulation distortion, and
 - selectively disabling (280) the wide-notch filter (130), based on the cessation of the intermodulation distortion.
4. The method of claim 1, wherein
 - detecting (240) the occurrence of intermodulation distortion includes:
 - determining (230) a plurality of signal strength measures, and
 - determining the occurrence of intermodulation distortion based on a relationship among the plurality of signal strength measures.
5. The method of claim 4, wherein
 - the plurality of signal strength measures include:
 - an RSSI measure, and
 - an Eb/Nt measure; and
 - determining the occurrence of intermodulation distortion if the Eb/Nt measure is below a first threshold value when the RSSI measure is above a second threshold value.
6. The method of claim 5, further including
 - selectively disabling (280) the wide-notch filter (130) when the Eb/Nt measure substantially increases.
7. The method of claim 4, wherein
 - the plurality of signal strength measures include:
 - an RSSI measure, and
 - an RF energy measure; and
 - determining the occurrence of intermodulation distortion if the RSSI measure is below a first threshold value when the RF energy measure is above a second threshold value.

8. The method of claim 4, wherein
the plurality of signal strength measures include:
a first measure of energy in a first frequency band of the one or more
baseband signals, and
a second measure of energy in a second frequency band of the one or more
baseband signals, the second frequency band being higher than the first frequency band;
and
determining the occurrence of intermodulation distortion if the first measure of
energy is substantially higher than an estimated first measure of energy corresponding to
the second measure of energy absent intermodulation distortion.

9. The method of claim 1, further including
disabling (290) the wide-notch filter (130), based on a duration since enabling the
wide-notch filter (130).

10. A receiver (100) comprising:
a mixer (120) that is configured to convert a received RF signal to an analog
baseband signal,
a detector (170, 370, 470) that is configured to assert a detection signal when
intermodulation distortion is detected in the analog baseband signal,
a filter (130), operably coupled to the mixer (120) and the detector (170, 370, 470),
that is configured to selectively attenuate signal components in the analog baseband signal
when the detection signal is asserted, and
a baseband processor (160, 560) that is configured to receive the analog baseband
signal and to provide therefrom a receiver output.

11. The receiver (100) of claim 10, wherein
the filter (130) is configured to selectively attenuate signal components within
approximately +/- 60 kHz of zero-Hertz when the detection signal is asserted.

12. The receiver (100) of claim 10, wherein
the detector (170, 370, 470) is further configured to de-assert the detection signal
based on a duration since asserting the detection signal.

13. The receiver (100) of claim 10, wherein
the baseband processor (160, 560) is further configured to provide digital measures
of signal strengths in the analog baseband signal, and
the detector (170, 470) is operably coupled to the baseband processor (160, 560)
and is configured to detect the intermodulation distortion in the analog baseband signal
based on the digital measures of signal strengths from the baseband processor (160, 560).

14. The receiver (100) of claim 13, wherein
 - the digital measures of signal strengths include:
 - an RSSI measure, and
 - an Eb/Nt measure; and
 - the detector (170, 470) asserts the detection signal when the Eb/Nt measure is below a first threshold value and the RSSI measure is above a second threshold value.
15. The receiver (100) of claim 14, wherein
 - the detector (170, 470) de-asserts the detection signal when the Eb/Nt measure substantially increases.
16. The receiver (100) of claim 10, wherein
 - the detector (370) is configured to detect the intermodulation distortion in the analog baseband signal based on:
 - a first measure of signal strength in the analog baseband signal, and
 - a second measure of signal strength in the received RF signal; and
 - the detector (370) asserts the detection signal when the first measure is below a first threshold value and the second measure is above a second threshold value.
17. The receiver (100) of claim 10, wherein
 - the detector (470) is configured to detect the intermodulation distortion in the analog baseband signal based on:
 - a first measure of energy in a first frequency band of the analog baseband signal, and
 - a second measure of energy in a second frequency band of the analog baseband signal, the second frequency band being higher than the first frequency band; and
 - the detector (470) asserts the detection signal when the first measure of energy is substantially higher than an estimated first measure of energy corresponding to the second measure of energy absent intermodulation distortion.
18. The receiver (100) of claim 17, wherein
 - the baseband processor (160, 560) is further configured to provide the first and second measures of energy to the detector (470).
19. The receiver (100) of claim 10, wherein
 - the received RF signal is a quadrature-modulated signal, and
 - the mixer (120) is configured to provide a pair of quadrature signals that comprise the analog baseband signal.
20. The receiver (100) of claim 10, wherein
 - the filter (130) is a digital filter that is included within the baseband processor (160, 560).